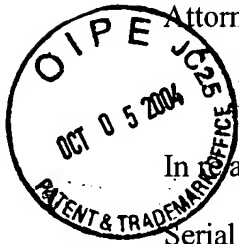


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Attorney Docket No. **IMMR-060/04US**

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of Erik J. SHAHOIAN

Serial No.: 10/782,953

Examiner: Unassigned

Filed: February 23, 2004

Art Unit: 2673

Confirmation No.: 7553

For: **HAPTIC INTERFACE DEVICE AND ACTUATOR ASSEMBLY PROVIDING
LINEAR HAPTIC SENSATIONS**

U.S. Patent and Trademark Office
220 20th Street South
Customer Window
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

- ☒ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
 - ☐ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
 - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. §1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check No. ___ in the amount of \$___ for the total fee is attached.
- ☐ A return receipt postcard is also enclosed.
- ☐ Please charge \$___ to Deposit Account No. 50-1283 for the total fee. This paper is being submitted in duplicate.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

Dated: October 5, 2004

Cooley Godward LLP
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Respectfully submitted,
COOLEY GODWARD LLP

By:



Erik B. Milch
Reg. No. 42,887

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

in re application of Erik J. SHAHOIAN

Serial No.: 10/782,953

Examiner: Unassigned

Filed: February 23, 2004

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**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §1.97(b)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56,
Applicant(s) hereby submits the following information in conformance with 37 C.F.R.
§§1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08 (1 of 2) is provided on the enclosed CD.
- ☒ No copies of the publications listed on the attached Form PTO/SB/08A (2 of 2) are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. 09/585,741 (now U.S. Patent No. 6,697,043 B1), 09/103,281 (now U.S. Patent No. 6,088,019), and/or 09/456,887 (now U.S. Patent No. 6,211,861 B1) to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- ☐ Publication(s) ___ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to ___ application serial no. ___ and mailed on ___.
- ☐ Enclosed is a copy of a non-English publication(s) ___. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) _____. English language publication ____ (copy enclosed) claims priority from this non-English publication.
- ☐ Enclosed is an explanation of non-English publication(s) ____ for which an English translation is not available.
- ☐ Enclosed is an English translation of non-English publication(s) ____ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending U.S. Patent Application Serial No. _____

This Information Disclosure Statement is filed within any one of the following time periods:

- ☐ within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
- ☐ within three months from the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in this international application;
- ☒ before the mailing date of a first office action on the merits; or
- ☐ before the mailing of a first office action after the filing of a request for continued examination under 37 C.F.R. § 1.114.

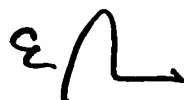
It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

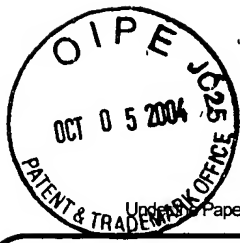
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Respectfully submitted,
COOLEY GODWARD LLP

By: _____


Erik B. Milch
Reg. No. 42,887



(1 of 2)

PTO/SB/08A (10-01)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 3

Complete if Known

Application Number	10/782,953
Filing Date	February 23, 2004
First Named Inventor	Erik J. Shahoian
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR060/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
		6,448,977	9/10/2002	Braun et al.	
		6,422,941	7/23/2002	Thorner et al.	
		6,219,034	4/17/2001	Elbing et al.	
		6,160,489	12/12/2000	Perry et al.	
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		5,690,582	11/25/1997	Ulrich et al.	
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		5,437,607	8/1/1995	Taylor	
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		5,283,970	2/8/1994	Aigner	
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		5,165,897	11/24/1992	Johnson	
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		4,464,117	8/7/1984	Foerst	
		4,333,070	6/1/1982	Barnes	
		4,262,549	4/21/1981	Schwellenbach	
		4,127,752	11/28/1978	Lowthorp	
		2,972,140	2/14/1961	Hirsch	

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Attorney Docket Number	IMMR060/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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Sheet **3** of **3****Complete if Known**

Application Number	10/782,953
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Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR060/04US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

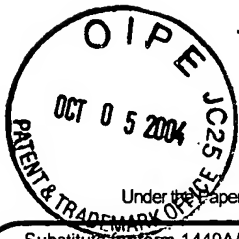
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

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(2 of 2)

PTO/SB/08A (10-01)

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STATEMENT BY APPLICANT**

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Sheet 1 of 5

Complete if Known

Application Number	10/782,953
Filing Date	February 23, 2004
First Named Inventor	Erik J. Shahoian
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Examiner Name	Unassigned
Attorney Docket Number	IMMR060/04US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
		3,875,488	04-1975	Crocker et al.	
		4,436,188	03-1984	Jones	
		4,477,043	10-1984	Repperger	
		4,604,016	08-1986	Joyce	
		4,782,327	11-1988	Kley et al.	
		4,794,384	12-1988	Jackson	
		4,800,721	01-1989	Cemenska et al.	
		4,839,838	06-1989	LaBiche et al.	
		4,861,269	08-1989	Meenen, Jr.	
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		4,935,728	06-1990	Kley	
		4,961,038	10-1990	MacMinn	
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		5,286,203	02-1994	Fuller et al.	
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		5,354,162	10-1994	Burdea et al.	
		5,355,148	10-1994	Anderson	

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Sheet **2** of **5****Complete if Known**

Application Number	10/782,953
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		Number Kind Code ² (if known)			
		5,381,080	01-1995	Schnell et al.	
		5,396,266	03-1995	Brimhall	
		5,398,044	03-1995	Hill	
		5,405,152	04-1995	Katanics et al.	
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		5,583,407	12-1996	Yamaguchi	
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		5,757,358	05-1998	Osga	
		5,760,764	06-1998	Martinelli	

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STATEMENT BY APPLICANT**

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Sheet **3** of **5****Complete if Known**

Application Number	10/782,953
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		5,767,839	06-1998	Rosenberg	
		5,771,037	06-1998	Jackson	
		5,781,172	07-1998	Engel et al.	
		5,790,108	08-1998	Salcudean et al.	
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		5,805,140	09-1998	Rosenberg et al.	
		5,805,165	09-1998	Thorne, III et al.	
		5,808,601	09-1998	Leah et al.	
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		5,823,876	10-1998	Unbehand	
		5,825,308	10-1998	Rosenberg	
		5,831,408	11-1998	Jacobus et al.	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		EP	0085518	A1			
		EP	875819				
		WO	95/32459				
		WO	97/21160				
		WO	00/21071				

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of

5

Complete if Known

Application Number	10/782,953
Filing Date	February 23, 2004
First Named Inventor	Erik J. Shahoian
Art Unit	2673
Examiner Name	Unassigned
Attorney Docket Number	IMMR060/04US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Application Number	10/782,953	
			Filing Date	February 23, 2004	
			First Named Inventor	Erik J. Shahoian	
			Art Unit	2673	
			Examiner Name	Unassigned	
Sheet	5	of	5	Attorney Docket Number	IMMR060/04US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
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